**Claims:**

1. A process for the hydroalkylation of an aromatic hydrocarbon comprising the step of contacting the aromatic hydrocarbon with hydrogen in the presence of a dual-functional catalyst comprising a first metal having hydrogenation activity and a crystalline inorganic oxide material having a X-ray diffraction pattern including d-spacing maxima at 12.4±0.25, 6.9±0.15, 3.57±0.07 and 3.42±0.07Angstrom.

2. The process of claim 1 wherein the crystalline inorganic oxide material is selected from MCM-22, PSH-3, SSZ-25, MCM-36, MCM-49 and MCM-56.

3. The process of claim 1 wherein the aromatic hydrocarbon is benzene.

4. The process of claim 1 wherein the first metal is selected from palladium, ruthenium, nickel and cobalt.

5. The process of claim 1 wherein the catalyst also contains a second metal, different from the first metal, and selected from zinc, tin, nickel and cobalt.

6. The process of claim 1 wherein the contacting step is conducted at a temperature of about 50 to 350°C, a pressure of about 100 to 7000 kPa, a benzene to hydrogen molar ratio of about 0.01 to 100 and a WHSV of about 0.01 to 100.

7. A catalyst suitable for the hydroalkylation of an aromatic hydrocarbon comprising

(a) a first metal having hydrogenation activity and selected from palladium, ruthenium, nickel and cobalt;

(b) a second metal, different from the first metal, and selected from zinc, tin, nickel and cobalt.; and

c) a crystalline inorganic oxide material having a X-ray diffraction pattern including the following d-spacing maxima 12.4±0.25, 6.9±0.15, 3.57±0.07 and 3.42±0.07.

8. The catalyst of claim 7 wherein the crystalline inorganic oxide material is selected from MCM-22, PSH-3, SSZ-25, MCM-36, MCM-49 and MCM-56.

9 The catalyst of claim 7 wherein the crystalline inorganic oxide material is MCM-22.

10. A catalyst suitable for the hydroalkylation of an aromatic hydrocarbon comprising

(a) MCM-22 zeolite;

(b) ruthenium or palladium; and

(c) tin or zinc.